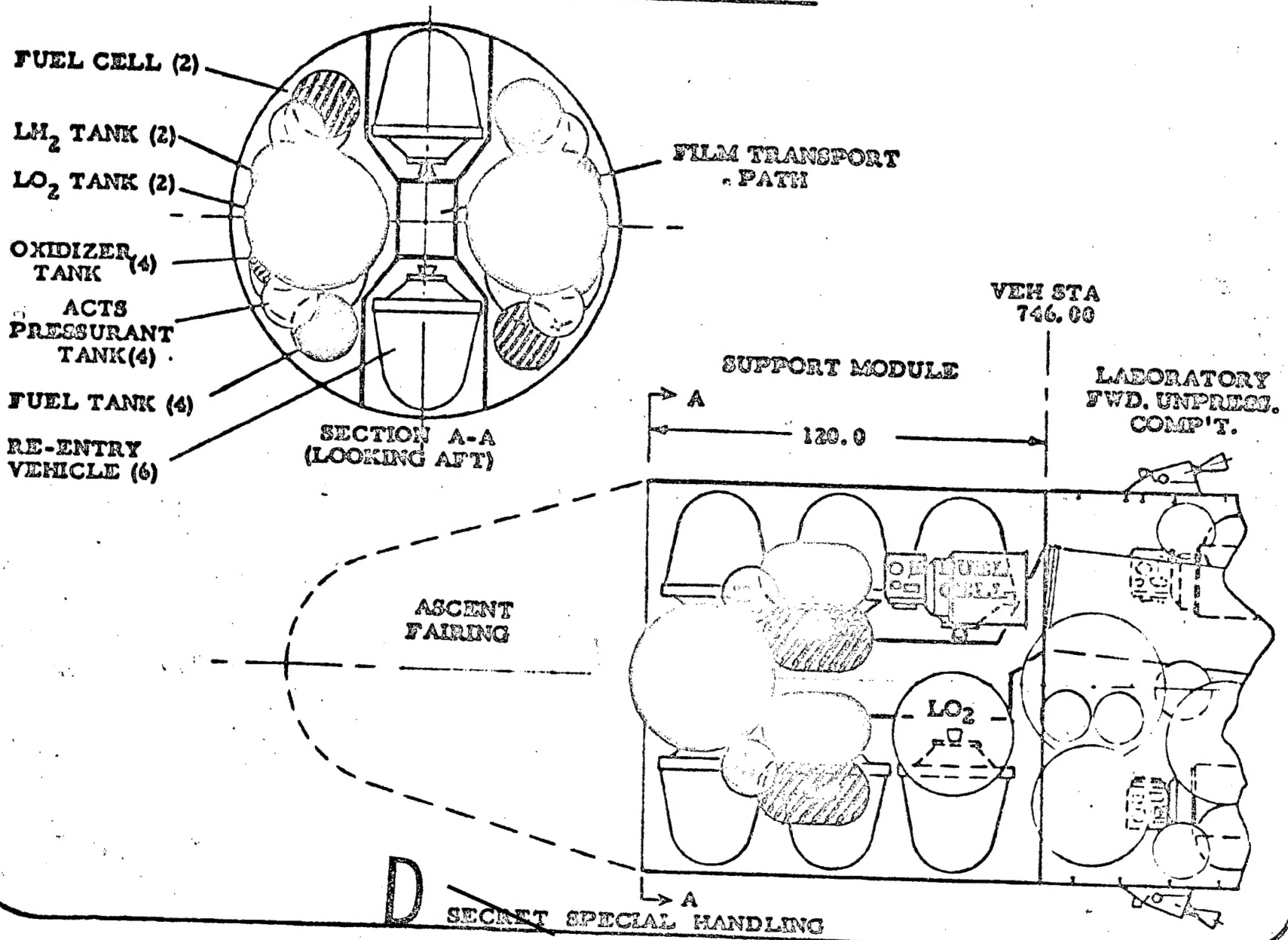
NRO APPROVED FOR RELEASE 10 JUNE 2014

D SECRET SPECIAL HANDLING

65 DAY MISSION SUPPORT MODULE
INTERNAL ARRANGEMENT



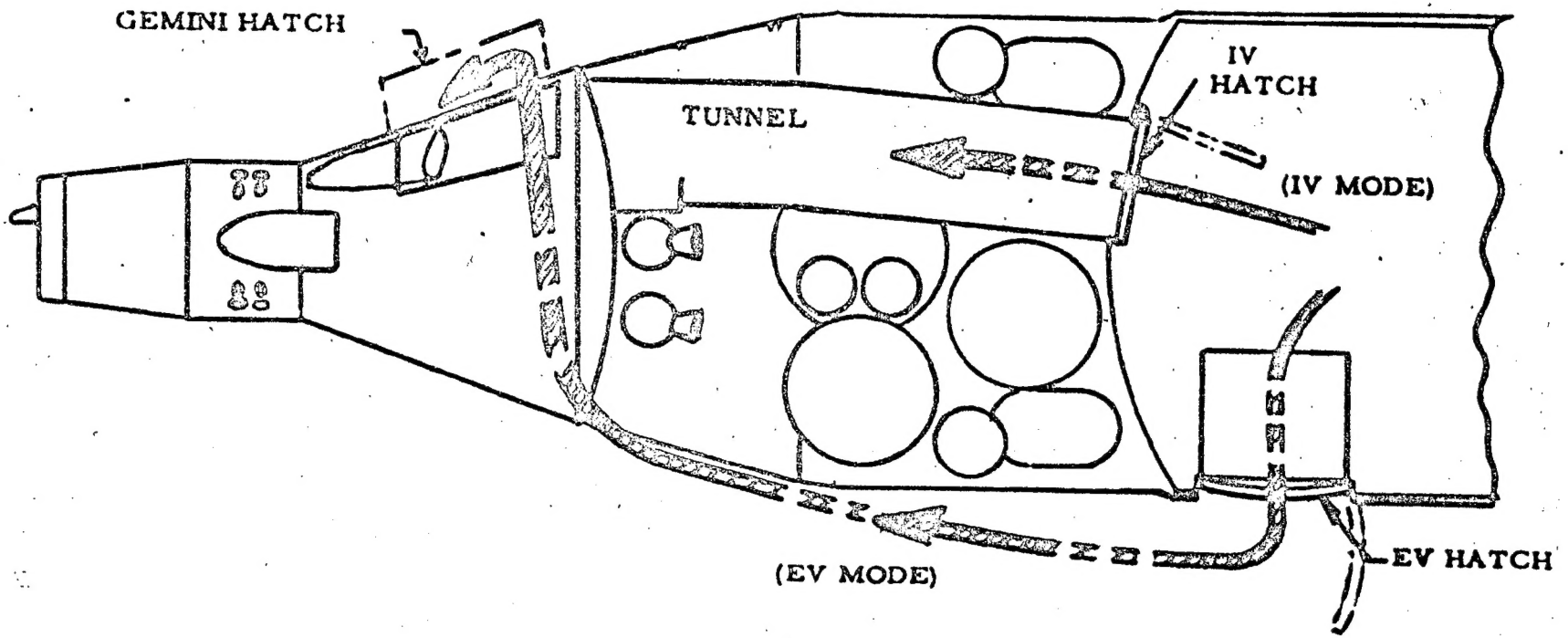
D SECRET SPECIAL HANDLING

NRO APPROVED FOR RELEASE 10 JUNE 2014

~~SECRET~~ SPECIAL HANDLING

ACCESS ROUTE PROBABILITIES

(LABORATORY TO GEMINI B)



INTRA-VEHICULAR MODE (IV)

EVENT	PROBABILITY*
⊙ HATCH INOPERATIVE	3.0×10^{-6}
⊙ CRUSHED TUNNEL	$.3 \times 10^{-6}$

EXTRA-VEHICULAR MODE (EV)

EVENT	PROBABILITY*
⊙ DRV TUBE HATCH INOPERATIVE	3.0×10^{-6}
⊙ PRESSURE SUIT ASSEMBLY INOPERATIVE	$.03 \times 10^{-6}$
⊙ GEMINI B HATCH INOPERATIVE (OPEN)	6×10^{-6}

* PROBABILITY OF OCCURRENCE FOR 30 DAY IN-ORBIT

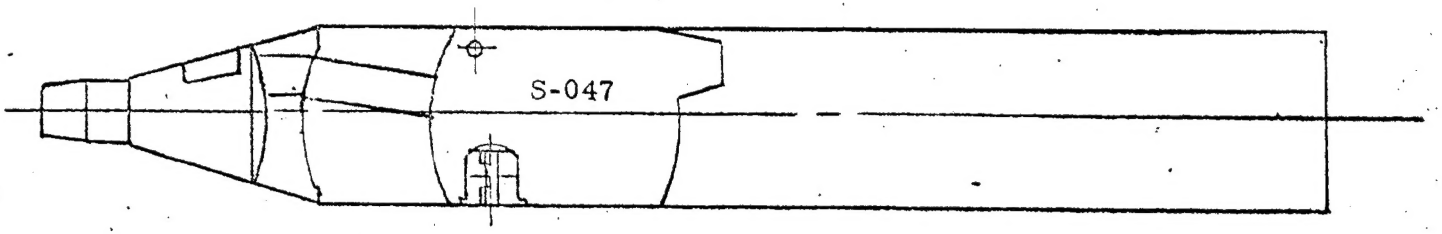
~~SECRET~~ SPECIAL HANDLING

NRO APPROVED FOR RELEASE 10 JUNE 2014

MOL/NASA APPLICATIONS "A"

FLIGHTS 3, 4, AND 5 (MANNED)

(30 DAY DURATION)



- S-047 STELLAR REFRACTION EXPERIMENT
  (158 LBS - 74 WATTS OPERATING POWER)

  74

  - ✓ MANUAL OPERATION FOR STAR ACQUISITION
  - ✓ MINIMUM SUBSYSTEM IMPACT
  - ✓ INSTALLATION REQUIREMENTS COMPATIBLE WITH VEHICLE DESIGN FEATURES
  - ✓ LESS THAN 1 KWH ELECTRICAL ENERGY PER MISSION
  - ✓ LESS THAN 4 HOURS OF CREW TIME PER MISSION

This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18 U.S.C., Section 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

GRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS,
DOD DIR 5200.10

NRO APPROVED FOR RELEASE 10 JUNE 2014

~~SECRET~~ ~~CONFIDENTIAL~~ SPECIAL HANDLING

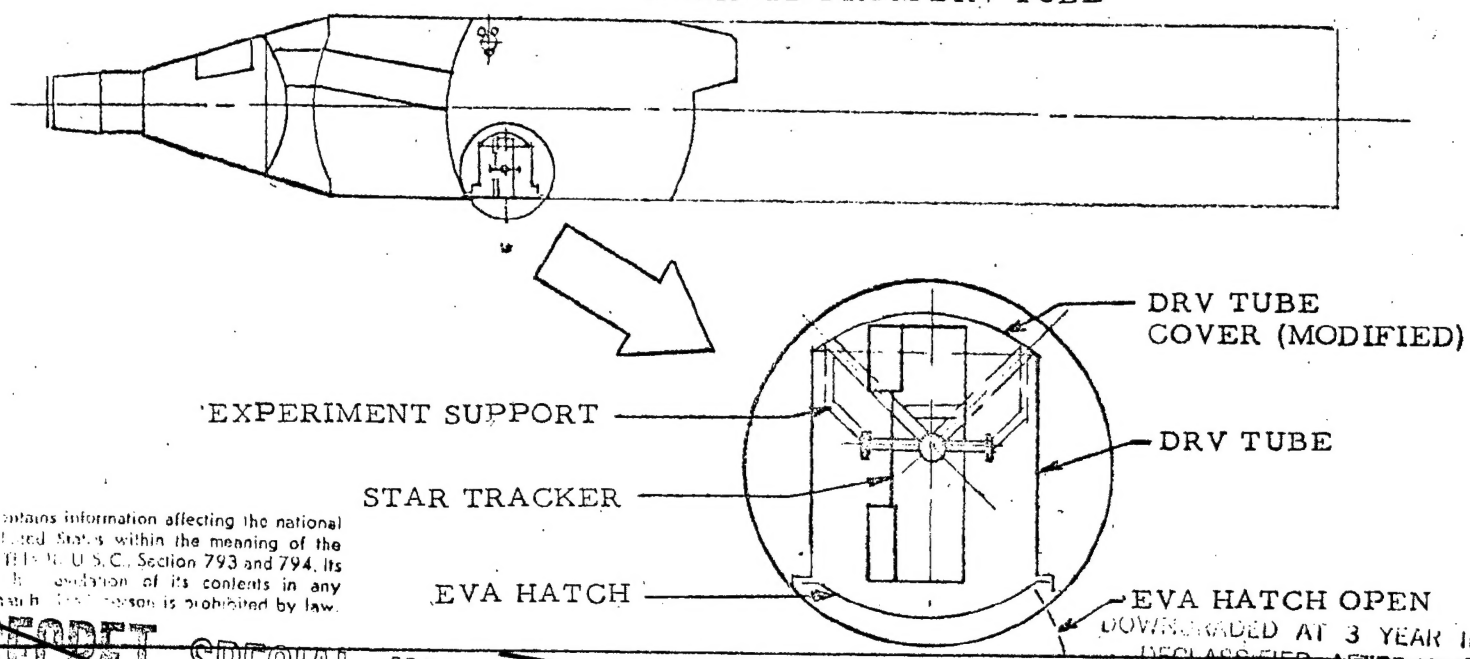
POSSIBLE S-047 EXPERIMENT INSTALLATION

(MOL FLIGHTS 3, 4, AND 5)

• S-047 WEIGHT (INSTALLED)	158 LBS
• S-047 VOLUME (STOWAGE)	4.5 CU. FT.
• S-047 ELECTRICAL ENERGY	9.5 KWH
• S-047 POWER PEAK	74 WATTS
• CREW TIME REQUIRED	20 HRS
• ACTS PROPELLANT REQUIRED	20 LBS

STOW IN SLEEP POSITION FOR LAUNCH

OPERATE FROM DRV TUBE



This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C., Section 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

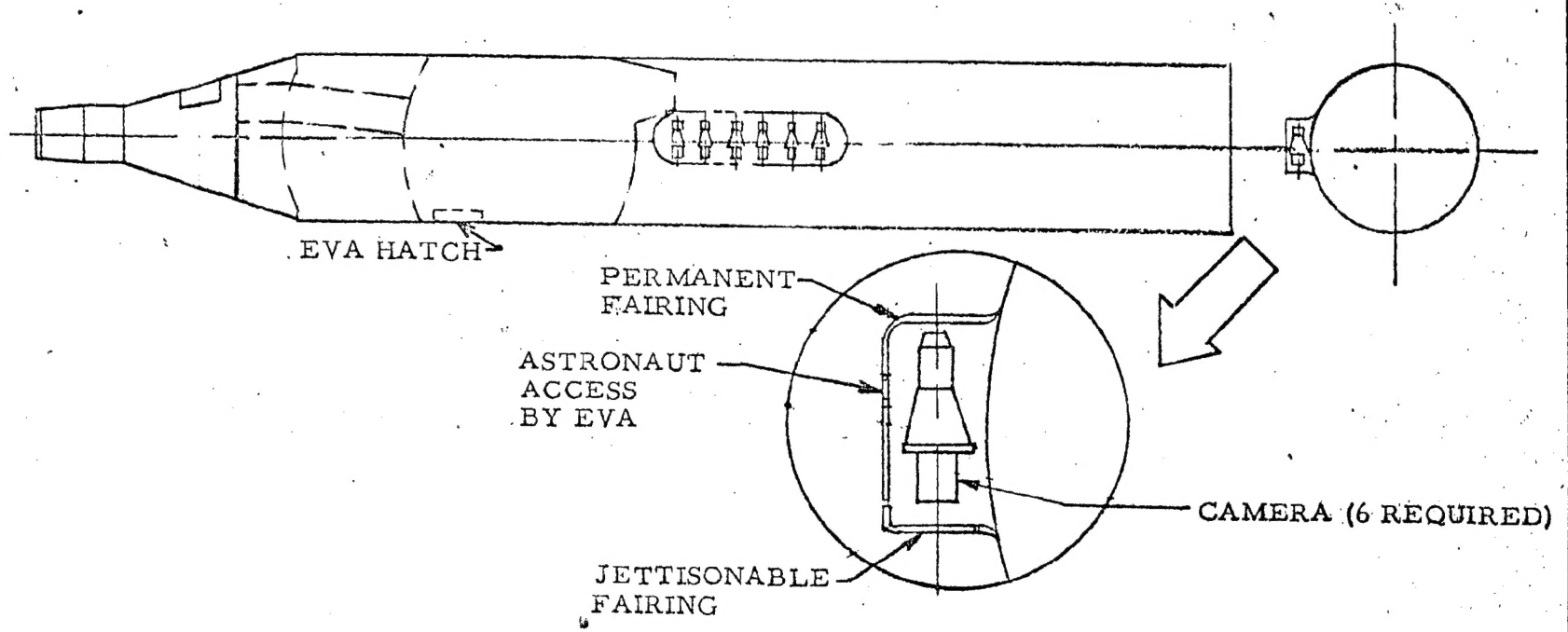
~~SECRET~~ ~~CONFIDENTIAL~~ SPECIAL HANDLING

NRO APPROVED FOR RELEASE 10 JUNE 2014

~~CONFIDENTIAL~~
~~SECRET~~ SPECIAL HANDLING

POSSIBLE S-042 EXPERIMENT INSTALLATION

(MOL FLIGHTS 3, 4, AND 5)



• S-042 WEIGHT (INSTALLED)	~2000 LBS
• S-042 ELECTRICAL ENERGY	3.2 KWH
• S-042 POWER PEAK	945 WATTS
• EVA REQUIRED FOR EXPERIMENT SUPPORT	~1.5 HRS
• CREW EXPERIMENT OPERATING TIME	2 HRS
• DATA RETURN	200 LBS

This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18 U.S.C., Section 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

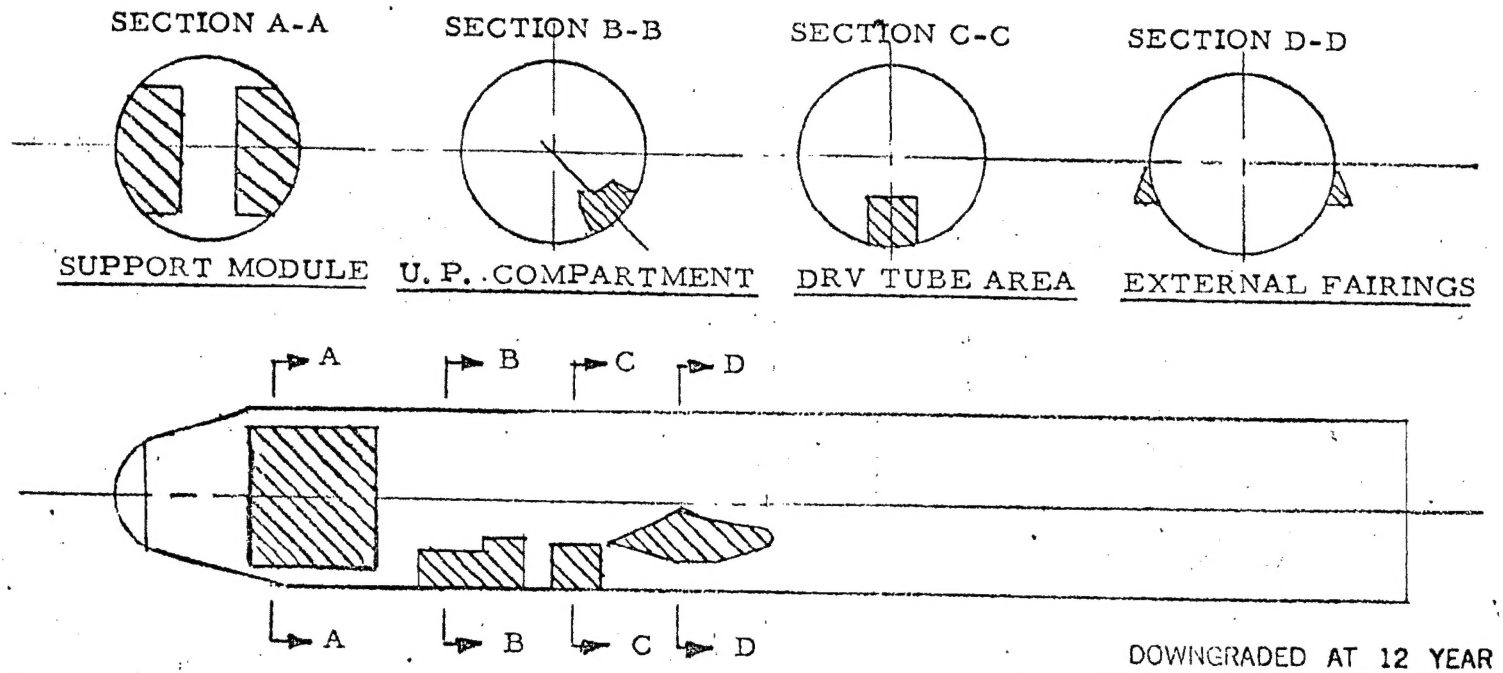
~~CONFIDENTIAL~~
~~SECRET~~ SPECIAL HANDLING

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

NRO APPROVED FOR RELEASE 10 JUNE 2014

AVAILABLE VOLUME FOR EXPERIMENTS

(MOL FLIGHTS 6 AND 7)



DOWNGRADED AT 12 YEAR INTERVAL; NOT AUTOMATICALLY DECLASSIFIED. DOD DIR 5200.10

- AVAILABLE VOLUME

SUPPORT MODULE	366 CU. FT.
U.P. COMPARTMENT	33 CU. FT.
DRV TUBE AREA	23 CU. FT.
EXTERNAL FAIRING (2)	36 CU. FT.

SPECIAL ACCESS REQUIRED
CLASSIFIED SPACE PROGRAM
NUMBER 632a

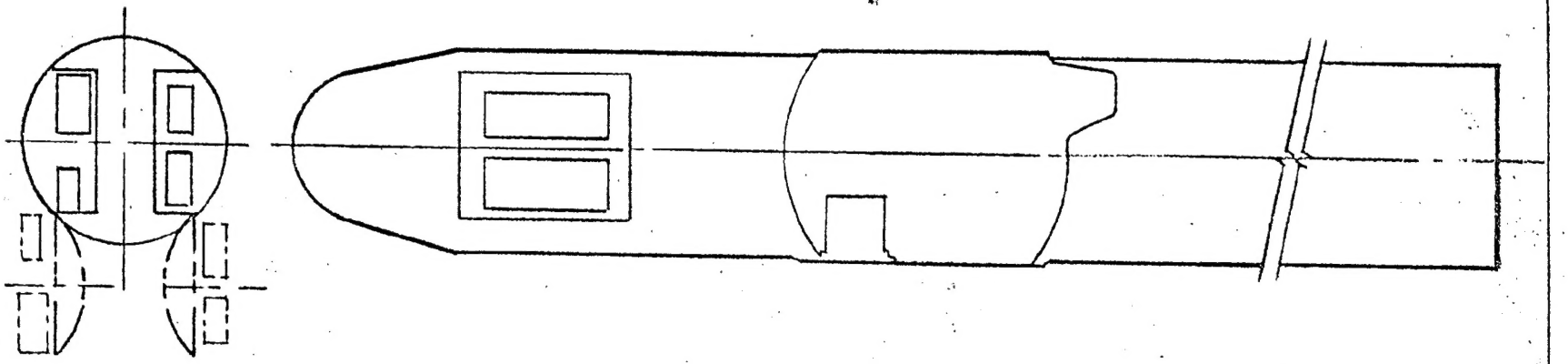
This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18 U.S.C., Section 793 and 794, its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

NRO APPROVED FOR RELEASE 10 JUNE 2014

MOL/NASA APPLICATIONS "A"

FLIGHT 6 OR 7 (UNMANNED)

(30 DAY DURATION)



- CAPABILITY FOR ALL EXPERIMENTS EXCEPT S-042 AND S-047
- AMPLE VOLUME AVAILABLE IN SUPPORT MODULE FOR EXPERIMENT INSTALLATION
- ADEQUATE PAYLOAD MARGIN FOR EXPERIMENT WEIGHT REQUIREMENTS
- ADEQUATE POWER AVAILABLE FOR EXPERIMENT REQUIREMENTS
- SYSTEM IMPACT
  - ✓ SUPPORT MODULE DESIGN MODIFICATIONS
  - ✓ DATA MANAGEMENT SUBSYSTEM AUGMENTATION
  - ✓ ON-BOARD SOFTWARE REVISION
  - ✓ SYSTEM TEST FLOW/AGE REVISIONS

This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18 U.S.C., Section 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

DOWNGRADED AT 12 YEAR INTERVALS; NOT AUTOMATICALLY DECLASSIFIED. DOD DIR 5200.10

NRO APPROVED FOR RELEASE 10 JUNE 2014

SECRET

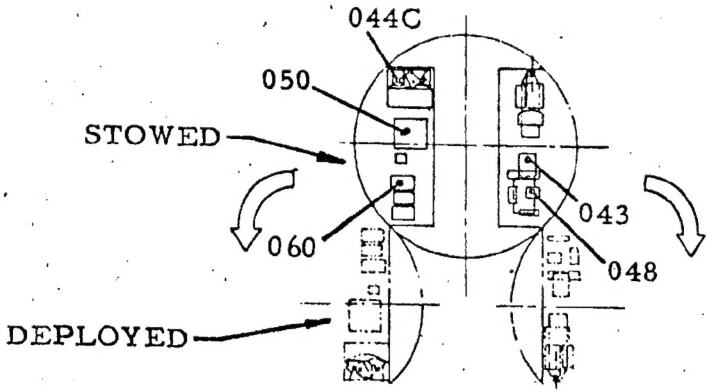
SPECIAL ACCESS REQUIRED
CLASSIFIED SPACE PROGRAM

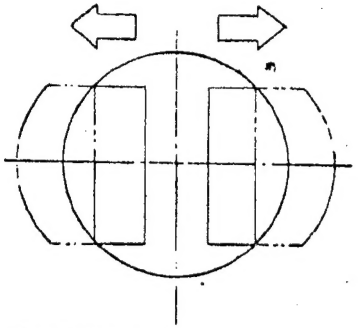
NUMBER 632a

~~SECRET~~ SPECIAL HANDLING

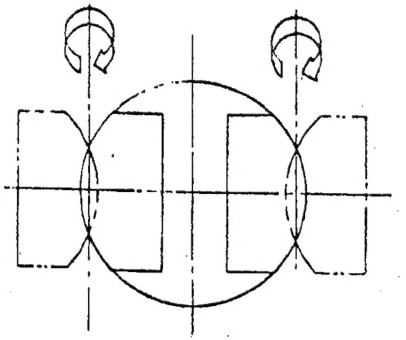
PROPOSED CONFIGURATION

NASA APPLICATIONS "A" EXPERIMENTS ON FLIGHT 6 OR 7

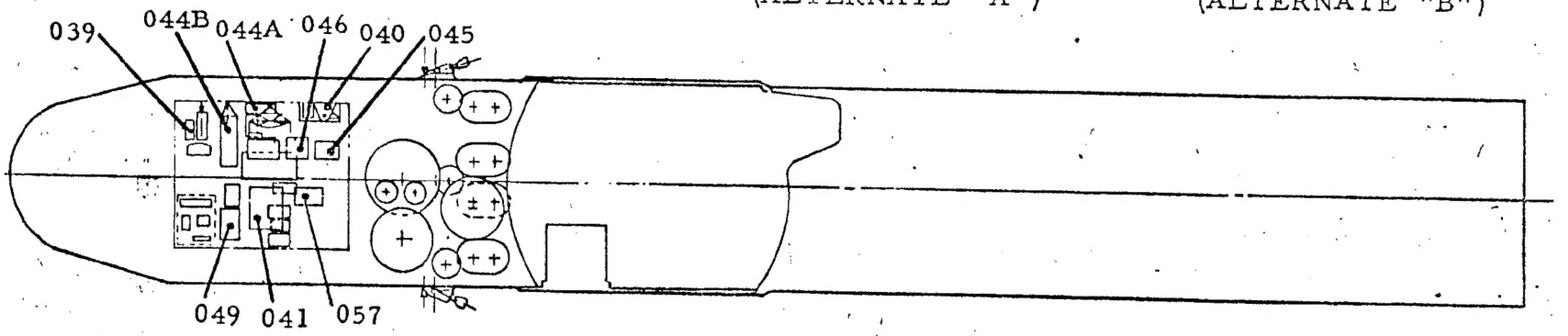




EXPERIMENTS PACKAGE DEPLOYMENT (ALTERNATE "A")



EXPERIMENTS PACKAGE DEPLOYMENT (ALTERNATE "B")



MISSION DURATION	30 DAYS	
AVAILABLE PAYLOAD MARGIN	7460	LBS
EXPERIMENTS PAYLOAD WEIGHT	1440	LBS

This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18 U.S.C., Section 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

~~SECRET~~ SPECIAL HANDLING

DOWNGRADED AT 12 YEAR INTERVALS; NOT AUTOMATICALLY DECLASSIFIED. DOD DIR 5200.10

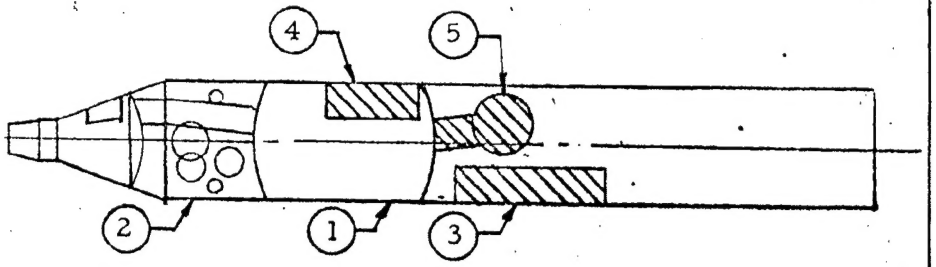
NRO APPROVED FOR RELEASE 10 JUNE 2014

MOL/NASA APPLICATIONS "A"

POSSIBLE SEPARATE VEHICLE APPLICATION CONCEPTS

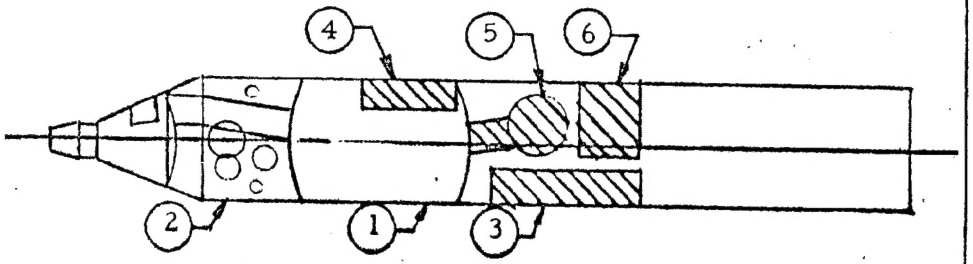
- CONCEPT A

1. BASELINE VEHICLE (LESS MISSION P/L EQUIP)
2. 30 DAY SYSTEMS QUAL
3. APP. "A" PACKAGE
4. BIO-TEST (P11 AND P12)
5. AIRLOCK



- CONCEPT B

1. BASELINE VEHICLE (LESS MISSION P/L EQUIP)
2. 30 DAY SYSTEMS QUAL
3. APP. "A" PACKAGE
4. BIO-TEST (P11 AND P12)
5. AIRLOCK
6. EXTENDED DURATION CAPABILITY (Δ 30 DAYS)
   - / ← ELECTRICAL POWER (CRYOGENIC TANKS AND FUEL CELLS)
   - / POWER CONDITIONING AND DISTRIBUTION
   - / ← EC/LS EXPENDABLES



This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18 U.S.C. Section 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

NRO APPROVED FOR RELEASE 10 JUNE 2014

~~CONFIDENTIAL~~

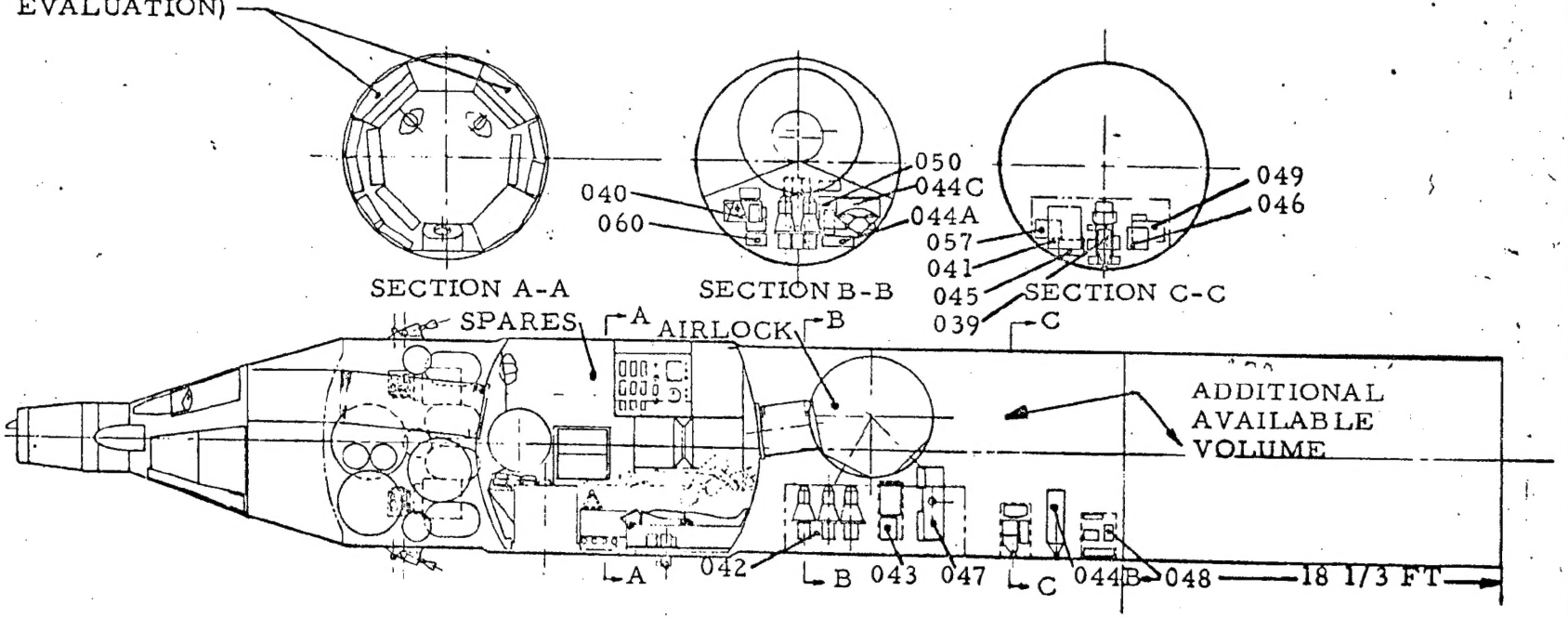
WHS-311
Page 155

POSSIBLE SEPARATE VEHICLE APPLICATION - CONCEPT A

~~SECRET~~ SPECIAL HANDLING

EXPERIMENTS P11 AND P12

(BIOMEDICAL AND PHYSIOLOGICAL EVALUATION)



- MISSION DURATION — 30 DAY EXPENDABLES
- PRESSURIZED VOLUME (INCLUDING AIRLOCK) — 1125 CU. FT.
- EXPERIMENT PAYLOAD — NASA APP. "A" + P11 + P12
- ADDITIONAL AVAILABLE VOLUME (UNPRESSURIZED) — ~ 1700 CU. FT.

~~SECRET~~ SPECIAL HANDLING

~~CONFIDENTIAL~~

This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18 U.S.C. Section 793 and 794. Its transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

DOWNGRADED AT 3 YEAR INTERVALS;
DECLASSIFIED AFTER 12 YEARS.
DOD DIR 5200.10

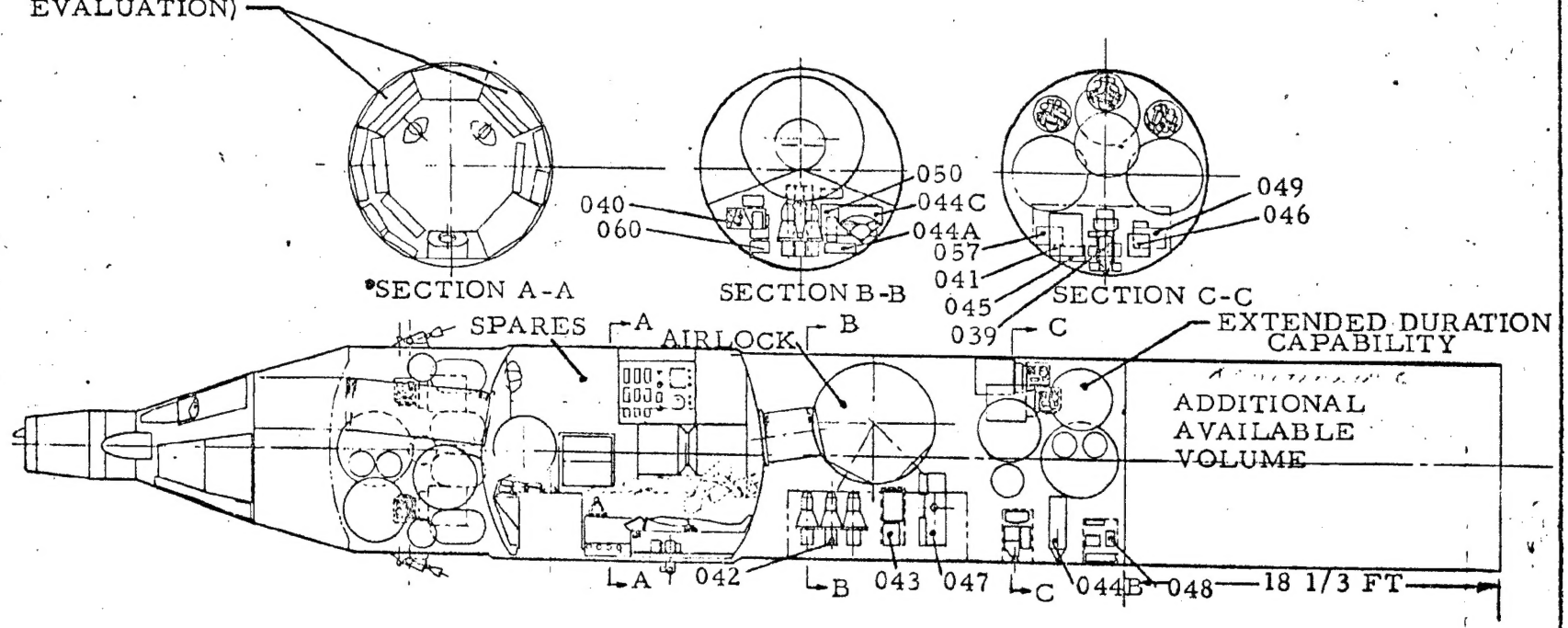
NRO APPROVED FOR RELEASE 10 JUNE 2014

~~CONFIDENTIAL~~

POSSIBLE SEPARATE VEHICLE APPLICATION - CONCEPT B

~~SECRET~~ SPECIAL HANDLING

EXPERIMENTS P11 AND P12
(BIOMEDICAL AND PHYSIOLOGICAL EVALUATION)



- MISSION DURATION — 60 DAY EXPENDABLES
- PRESSURIZED VOLUME (INCLUDING AIRLOCK) — 1125 CU. FT.
- EXPERIMENT PAYLOAD — NASA APP. "A" + P11 + P12
- ADDITIONAL AVAILABLE VOLUME (UNPRESSURIZED) — ~ 1400 CU. FT.

...contains information affecting the national ...fense of the United States within the meaning of the ...spionage Laws, Title 18 U.S.C., Section 793 and 794. Its ...ransmission or the revelation of its contents in any ...manner to an unauthorized person is prohibited by law.

~~SECRET~~ ~~CONFIDENTIAL~~ SPECIAL HANDLING

DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10